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Pion and Kaon Structure Functions at EIC

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Pions and kaons are, along with protons and neutrons, the main building blocks of nuclear matter. The distribution of the fundamental constituents, the quarks and gluons, is expected to be different in pions, kaons, and nucleons. However, experimental data are sparse. As a result, there has been persistent doubt about the behavior of the pion's valence quark structure function at large Bjorken-x and virtually nothing is known about the contribution of gluons. The Electron-Ion Collider with an acceptance optimized for forward physics could provide access to structure functions over a larger kinematic region. This would allow for measurements testing if the origin of mass is encoded in the differences of gluons in pions, kaons, and nucleons, and measurements that could serve as a test of assumptions used in the extraction of structure functions. Measurements at an EIC would also allow to explore the effect of gluons at high x. In this talk we will discuss the prospects of such measurements.

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